

173. *Three interesting Cretaceous Ammonites recently acquired from Hokkaido and Saghalin.*

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(Rec. Dec. 12, 1923; comm. by Hisakatsu YABE, M.I.A., Dec. 12, 1926)

While undertaking a revision of an earlier work by Prof. H. Yabe on the Cretaceous ammonites from Saghalin and Hokkaidô¹⁾, I found it of urgent need to obtain more and better materials from various localities in these islands, rarely trodden in the former days, and this desire was partly fulfilled this summer by a grant from the Imperial Academy²⁾, which rendered me possible to make an excursion through Saghalin and Hokkaidô and to collect numerous specimens of ammonites. This new collection contains some interesting forms worthy of special attention, and short accounts of them are forwarded in the present article.

1. *Yabeiceras orientalis* Tokunaga and Shimizu

The genus *Yabeiceras*³⁾ was established by Mr. S. Tokunaga and me on the genotype, *Y. orientale* Tok. and Sh. The genus now includes two other species, *Y. kotoi* Tok. and Sh., and *Y. himuroi* Tok. and Sh., and all these three species are hitherto known only from the Senonian Futaba Group of the Futaba district, Province of Iwaki. Of *Y. orientale*, we had then only one specimen at disposal.

1) H. YABE: Cretaceous Cephalopoda from Hokkaidô (MS), 1901-1902. A part of this report was published in the following papers:

Cretaceous Cephalopoda from the Hokkaidô, Pt. I. Jour. Coll. Sci. Imp. Univ., Tôkyô, vol. XVIII, 1903. Pt. II. Ibid., vol. XX, 1904.

Zur Stratigraphie und Palaeontologie von Hokkaidô und Sachalin. Z. d. deutsch. geol. Gesell., vol. LXI, 1909. Die Scaphiten aus der Oberkreide von Hokkaido. Beitr. z. Geol. u. Pal. Oesterr.-Ung. u. Orients, vol. XXIII, 1910.

2) In the present occasion I wish to express my cordial thanks to the authorities of the Imperial Academy. Also grateful acknowledgment is due to Prof. H. YABE for his encouragement and valuable advice.

3) S. TOKUNAGA and S. SHIMIZU: The Cretaceous Formation of Futaba in Iwaki and Its Fossils. Jour. Faculty Science, Imp. Univ. Tôkyô, Section II, vol. I, Pt. 6, 1926.

Y. orientale is now found to occur also in the Upper Ammonites Beds of Hokkaidô, a specimen of it being obtained from the deposits exposed in the valley of the Bibai, Sorachi-gun, province of Ishikari; the single specimen at hand is larger than the holotype, measuring 163 mm. in diameter, 68 mm. in umbilical width, 40 and 53 mm. in the breadth and height of the last whorl. It is also in a better state of preservation, showing certain features not exhibited by the latter: namely, the shell is quite smooth on the surface in more than 75 mm. in diameter, and the involution decreases gradually from $1/2$ at 85 mm. diameter to $1/3$ at 163 mm. diameter. The two specimens show that *Yabeiceras* resembles closely *Barroisiceras* of *B. desmolinsi* Group in external form, though less so in suture-lines.

2. *Nipponites mirabilis* Yabe

This is an extraordinary type of evolute ammonites, coiled in a very peculiar style; Yabe established this new genus¹⁾ twenty two years ago on a specimen derived from the Upper Ammonites Beds of the Opiraushibets, province of Teshio. The specimen being unique, some authors rather tend to accept it as nothing but a mere pathological individuum of a *Bostrychoceras*-like form.

Yabe illustrated in details this extraordinary form and recognised already that its coils, though apparently very irregular, are arranged in a definite plan; his view now found a support in three other specimens, recently examined by me, which agree quite well with the holotype in all the features. One of these new materials is in our possession and derived from the Upper Ammonites Beds of the upper valley of the Ashibets, province of Ishikari, while the other two²⁾, found by Mr. M. Kawata of the Geological Institute of the Imperial University of Tôkyô, are from the contemporaneous deposits of the Naibuchi District, Japanese Saghalin.

3. *Varunaites* (nov. gen.) *varuna* (Forbes). Genotype *Ammonites varuna* Forbes.

A specimen identical with *Ammonites varuna* Forbes from the

1) H. YABE, loc. cit. (1904), p. 20, Pl. IV, figs. 4-7; pl. VI, fig. 6.

2) I wish to extend my hearty thanks to Messrs. Y. OZAWA and KAWATA who kindly gave me an opportunity to examine these specimens.

Varudayur Beds of the Pondicherry district, S. India¹⁾, and the Quiriquina Beds of Chile²⁾ is obtained also from the Upper Ammonites Beds of Takinosawa along the Hôshin railway line of Japanese Saghalin, now in construction. *Ammonites varuna* has sometimes been assigned to the genus *Gaudryceras*, and very lately brought to comparison by P. Marshall with his new genus *Zelandites*³⁾, with the Genotype *kaiparaensis* Marshall. *Desmoceras kawanoi* Jimbô⁴⁾, later transferred by Yabe⁵⁾ to *Gaudryceras*, from the Upper Ammonites Beds Hokkaidô and Japanese Saghalin is no doubt an ally of *Z. kauparaensis* and should be considered as another species of *Zelandites*. *Amm. varuna*, compared with the specimens of the two species of *Zelandites*, is believed as representing a new type sufficiently distinct from the genus though with great affinity.

Varunaites resembles certainly *Zelandites* in general outline, but is quite smooth on the surface, lacking periodic constrictions characteristic to the latter. Further, the two genera are easily distinguishable by means of suture-lines; in *Zelandites*, the first lateral lobe is broad and the first lateral saddle is markedly lower than the external, while in *Varunaites*, the external and lateral saddles are bifid, the first lateral lobe is narrower and distinctly longer than the siphonal, and the external and first lateral saddles are almost equal in height, breadth and incision.

On the other hand, *Varunaites* more or less resembles *Pseudophyllites*⁶⁾ (genotype, *P. india* (Forbes)); but the whorls of the latter are more or less inflated and its suture-lines are characterised by the external and lateral saddles all trifold and the auxilliary lobes less numerous than in *Varunaites*.

*Gaudryceras*⁷⁾, to which *Ammonites varuna* was once assigned, is distinguished from *Varunaites* by the widely umbilicated shell, with

1) F. KOSSMAT: Untersuchungen über die Südindischen Kreideformation. Beitr. z. Palaeont. u. Geol. Oesterr.-Ung. u. Orients, Vol IX, 1895, P. 130, 160; Pl. XVI, figs. 4 a-b; Pl. XVII. fig. 8.

2) G. STEINMANN: Das Alter und die Fauna der Quiriquinaschichten in Chile. N. Jahrb. M.G.P., BB. X, 1895, P. 84, Pl. V, figs. 2 a-b.

3) P. MARSHALL: The Upper Cretaceous Ammonites of New Zealand. Trans. N. Z. Inst., Vol. LVI, 1926, P. 147.

4) K. JIMBÔ: Beiträge zur Kenntnis der Kreideformation von Hokkaido. Pal. Abh., N.F., Vol. II, 1904, P. 28, Pl. I, figs. 7 a b.

5) H. YABE, loc. cit. (1903), P. 41.

6) F. KOSSMAT, loc. cit. (1895), P. 137.

7) F. KOSSMAT, ibid, P. 113.

rounded whorls; besides, the suture-lines of the genotype, *G. sacya* (Forbes), and the other typical species of *Gaudryceras* are provided with the first lateral lobe never exceeding the external in length and with the auxiliary lobes less numerous than in *Varunaites*.

The generic diagnosis of *Varunaites* may be stated as follows :

Conch smooth, laterally compressed and flattened, whorls increasing rather rapidly in height, highly involute. Suture-lines incised very cemplicately, with numerous lobes and saddles, all nearly symmetrically bifid; saddles moderately high, regularly decreasing in height; the first lateral lobe narrower and longer than the siphonal; first lateral saddle nearly equal in height and breadth to the external; auxiliary lobes 8 in number.
